

Taxonomy of the *Argemone fruticosa* complex (Papaveraceae)

Billie L. Turner

Plant Resources Center, The University of Texas, Austin, TX 78712, billie@uts.cc.utexas.edu

ABSTRACT

The *Argemone fruticosa* complex, as interpreted here, is composed of two species, *A. fruticosa* and *A. turnerae*, the latter having two varieties. Reasons for the recognition of the taxa, and maps showing their distributions, are presented. Published on-line www.phytologia.org *Phytologia* 95(2): 212-214 (May 1, 2013).

KEY WORDS: Papaveraceae, *Argemone*, *A. fruticosa*, *A. ownbeyana*, *A. turnerae*, Mexico, Chihuahua, Coahuila

Argemone fruticosa Thurber ex A. Gray was first described in the year 1853, based upon a Thurber collection from the Mountain Pass of La Pena, near the village of Parras, Coahuila. As noted by Ownbey (1958), in his monograph of the genus, the species is “a local endemic and, although it has been known for over 100 years, adequate collections have never been distributed.” Indeed, he commented further that it was one of only two species (from among 23) in the genus that he had not personally studied in the field. Ownbey cited 5 herbarium collections as having been examined, including the type. Since Ownbey’s account, to my knowledge, only ca 5 additional collections (LL-TEX) have come to the fore, all from southernmost Coahuila, mostly from near Parras (Map 1).

Argemone turnerae A.M. Powell (named for the present author’s second wife, Pollie Turner) was described in 1972 by my Academic son, Mike Powell, largely because it was an edaphic endemic (occurring in gypsaceous soils) and had a combination of characters not called to the fore by Ownbey’s key to taxa, namely espinose fruits and white or whitish petals. Actually, had he examined plants of *A. fruticosa*, not available to him at the time, he would certainly have recognized its close relationship to the latter. Regardless, subsequent collections of what appeared to be *A. turnerae*, all having markedly spinulose stems and foliage, as well as semi-spinose ovaries, were annotated by the present author as *A. turnerae* var. *hispidula* B.L. Turner (unpublished), the rank given because the infraspecific taxon graded into its allopatric cohort var. *turnerae*.

Johnston (1976) selected the unpublished type of my var. *hispidula* as the type of his new species, *Argemone ownbeyana* M.C. Johnston. He was also the first to recognize its relationship to *A. fruticosa*, aptly noting:

Morphologically *A. Ownbeyana* is clearly similar to *A. fruticosa* A. Gray of southern Coahuila and to *A. turnerae* A. M. Powell of east central Chihuahua. These three taxa share a shrubby habit, tough, unlobed, glaucous leaves, large yellow-centered flowers, and shortly conic-ovoid capsules, and they stand clearly apart from the rest of the genus in these characters. They are all desert gypsophiles. They are morphologically distinguished, inter se, on the basis of their armature, a character that normally would be sufficient, along with geographic segregation, to permit the recognition of subspecies or varieties at most. However, I am led to the present conservative treatment by the strong geographic disjunction of all three and the discovery that *A. fruticosa* and *A. Turnerae* are quite distinct in their alkaloid-content (Stermitz, et al., 1973, both papers). The alkaloids of *A. Ownbeyana* have not been investigated as yet.

Johnston, at the time, also examined the following collections of *A. turnerae*, to which he appended the name *A. ownbeyana*, both of these subsequently annotated by me as intermediates to var.

hispidula; **Mexico. Chihuahua:** 9.5 km S of Ojinaga, Johnston et al. 10732 (LL); Gypsum hills, NE shores of Lake Gravelo on the Rio Conchos. Powell 2446 (TEX).

Finally, it should be noted that Schwarzbach and Kadereit (1999), using DNA data, recognized the close relationship of the present complex, stating “*A. fruticosa/A. turnerae* form a well-supported clade separate from *A. subintegrifolia* and sister to all other *Argemone* species.” Schwarzbach (by annotation) also accepted the infraspecific taxa that I proposed, treating these as subspecies instead of varieties, applying the name subsp. *ownbeyana* instead of that adopted here, the latter never formally published, although she used the category in her publication with Kadereit. In short, the latter authors applied the name *A. turnerae* subsp. *ownbeyana* to what I called var. *hispidula*, neither infraspecific name justified by formal publication, which is the purpose, in part, of the present paper.

Key to the *Argemone fruticosa* complex

1. Petals more nearly yellow; southern Coahuila.....**A. fruticosa**
1. Petals more nearly white; northeastern Chihuahua...(2)
2. Fruits spinose; stems and leaves hispid.....**A. turnerae** var. **hispidula**
2. Fruits w/o spines; stems and leaves not hispid.....**A. turnerae** var. **turnerae**

ARGEMONE FRUTICOSA Thurber ex A. Gray, Pl. Nov. Thurb. 306. 1854.

As noted above this is a well known taxon, occurring mainly in gyp soils of southern Coahuila in the Sierra del Alamitos, Sierra del Venado and Sierra La Paila, 800-1500 m (Map 1). The species is represented by 5 collections at LL-TEX, flowering Jun-Sep, the petals reportedly yellow. Ownbey (1958) provided a detailed description of the taxon.

ARGEMONE TURNERAE A.M. Powell, Southwest. Naturalist 17: 106. 1972.

var. **turnerae**

This taxon is readily recognized by traits given in the above key; it is represented by 8 sheets at LL-TEX, 6 of these typical, and 2 intermediate to var. *hispidula*, as cited above (these not called to the fore as intermediates by Johnston).

var, **hispidula** B.L. Turner, var. and stat. nov.

Argemone ownbeyana M.C. Johnston, Wrightia 5: 259. 1976.

As noted above, Johnston considered treating the above three taxa at the infraspecific level, but opted for specific treatment because of the “strong geographic distribution of all three,” this not so for the varietal taxa, as indicated in Map 1. It should be noted that I could have adopted the name, var. *ownbeyana* for the present taxon, but I find the double eponymy distracting and not biomorphologically informative; besides, I had already annotated (in 1981) all of the sheets *A. ownbeyana* at LL-TEX as var. *hispidula*.

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LITERATURE CITED

- Johnston, M.C. 1976. A new species of prickly poppy from Mexico. *Wrightia* 5: 259-260.
- Ownbey, G.B. 1958. Monograph of the genus *Argemone* for North America and the West Indies. *Mem. Torrey Bot. Cl.* 21: 1-157.
- Powell, A.M. 1972. A new species of *Argemone* (Papaveraceae) from Mexico. *Southw. Naturalist* 17: 106.
- Schwarzbach, A.E. and J.W. Kadereit. 1999. Phylogeny of prickly poppies, *Argemone* (Papaveraceae), and the evolution of morphological and alkaloid characters based on ITS nrDNA sequence variation. *Pl. Syst. Evol.* 218: 257-279.
- Stermitz, F.R., et al. 1973. Alkaloids of *Argemone fruticosa* and *A. echinata*. *Phytochemistry* 12: 381-382.
- Stermitz, F.R., et al. 1973. Alkaloids of *Argemone albiflora*, *A. brevicornuta* and *A. turnerae*. *Phytochemistry* 12: 1355-1357.

